

I claim:

1. A fuel system for a marine propulsion device, comprising:

an engine;

5 a fuel storage reservoir configured to contain fuel for use by said engine, said fuel storage reservoir being connected in fluid communication with said engine; and

a thermoelectric device disposed in thermal communication with said fuel to remove heat from said fuel.

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2. The fuel system of claim 1, further comprising:

a source of electric power connected in electrical communication with said thermoelectric device.

15 3. The fuel system of claim 2, wherein:

said source of electric power is a battery.

4. The fuel system of claim 2, wherein:

said source of electric power is an alternator.

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5. The fuel system of claim 1, further comprising:

a temperature sensing device connected in thermal communication with said fuel.

25 6. The fuel system of claim 5, further comprising:

a microprocessor connected in signal communication with said temperature sensing device.

7. The fuel system of claim 1, further comprising:

a fuel pumping module connected in fluid communication between said fuel storage reservoir and said engine.

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8. The fuel system of claim 7, further comprising:

a low pressure fuel conduit connected in fluid communication between said fuel storage reservoir and said fuel pumping module, said Peltier-effect device being connected in thermal communication with said low pressure fuel conduit.

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9. The fuel system of claim 7, further comprising:

a high pressure fuel conduit connected in fluid communication between said fuel pumping module and said engine, said thermoelectric device being connected in thermal communication with said high pressure fuel conduit.

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10. The fuel system of claim 7, further comprising:

a low pressure fuel conduit connected in fluid communication between said fuel storage reservoir and said fuel pumping module, said thermoelectric device being connected in thermal communication with said low pressure fuel conduit;
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a high pressure fuel conduit connected in fluid communication between said fuel pumping module and said engine, said thermoelectric device being connected in thermal communication with said high pressure fuel conduit.

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11. The fuel system of claim 1, further comprising:

a secondary heat exchanger connected in thermal communication with said thermoelectric device, said secondary heat exchanger connecting said thermoelectric device in thermal communication with a stream of water.

5 12. The fuel system of claim 11, further comprising:

a water pump connected in fluid communication with said thermoelectric device to cause said stream of water to flow from a body of water through said secondary heat exchanger.

10 13. The fuel system of claim 1, further comprising:

a fuel rail connected in fluid communication with said fuel storage reservoir to distribute said fuel to a plurality of cylinders of said engine.

14. The fuel system of claim 1, further comprising:

15 a fuel filter connected in fluid communication between said fuel storage reservoir and said engine.

15. The fuel system of claim 1, wherein:

said marine propulsion device is an outboard motor.

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16. The fuel system of claim 1, further comprising:

a heat exchange conduit connected in thermal communication with said thermoelectric device to direct a flow of said fuel through said heat exchange conduit in thermal communication with a cold side of said thermoelectric device.

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17. The fuel system of claim 7, wherein:

5 said fuel pumping module comprises a lift pump and a high pressure pump, said lift pump being connected in fluid communication between said fuel pumping module and said fuel storage reservoir, and said high pressure pump being connected in fluid communication between said fuel pumping module and said engine.

18. The fuel system of claim 1, wherein:

 said thermoelectric device is a Peltier-effect device.

10 19. A fuel system for a marine propulsion device, comprising:

 an engine;

 a fuel storage reservoir configured to contain fuel for use by said engine, said fuel storage reservoir being connected in fluid communication with said engine;

15 a Peltier-effect device disposed in thermal communication with said fuel to remove heat from said fuel; and

 a secondary heat exchanger connected in thermal communication with said Peltier-effect device, said secondary heat exchanger connecting said Peltier-effect device in thermal communication with a stream of water.

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20. The fuel system of claim 19, further comprising:

 a fuel pumping module connected in fluid communication between said fuel storage reservoir and said engine.

25 21. The fuel system of claim 20, further comprising:

a low pressure fuel conduit connected in fluid communication between said fuel storage reservoir and said fuel pumping module, said Peltier-effect device being connected in thermal communication with said low pressure fuel conduit.

5 22. The fuel system of claim 20, further comprising:

a high pressure fuel conduit connected in fluid communication between said fuel pumping module and said engine, said Peltier-effect device being connected in thermal communication with said high pressure fuel conduit.

10 23. The fuel system of claim 20, further comprising:

a low pressure fuel conduit connected in fluid communication between said fuel storage reservoir and said fuel pumping module, said Peltier-effect device being connected in thermal communication with said low pressure fuel conduit; and

15 a high pressure fuel conduit connected in fluid communication between said fuel pumping module and said engine, said Peltier-effect device being connected in thermal communication with said high pressure fuel conduit.

24. The fuel system of claim 19, wherein:

20 said marine propulsion device is attachable to a marine vessel.

25. The fuel system of claim 24, further comprising:

a water pump connected in fluid communication with said Peltier-effect device to cause said stream of water to flow from a body of water, on which said 25 marine vessel is operable, through said secondary heat exchanger.

26. The fuel system of claim 19, further comprising:

a fuel rail connected in fluid communication with said fuel storage reservoir to distribute said fuel to a plurality of cylinders of said engine.

27. The fuel system of claim 26, further comprising:

5 a fuel filter connected in fluid communication between said fuel storage reservoir and said engine.

28. The fuel system of claim 19, wherein:

said marine propulsion device is an outboard motor.

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29. The fuel system of claim 19, further comprising:

a heat exchange conduit connected in thermal communication with said Peltier-effect device to direct a flow of said fuel through said heat exchange conduit in thermal communication with a cold side of said Peltier-effect device.

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30. The fuel system of claim 20, wherein:

said fuel pumping module comprises a lift pump and a high pressure pump.

31. The fuel system of claim 30, wherein:

20 said lift pump is connected in fluid communication between said fuel pumping module and said fuel storage reservoir; and

said high pressure pump is connected in fluid communication between said fuel pumping module and said engine.

25 32. A fuel system for a marine propulsion device, comprising:

an engine;

a fuel storage reservoir configured to contain fuel for use by said engine, said fuel storage reservoir being connected in fluid communication with said engine;

5 a Peltier-effect device disposed in thermal communication with said fuel to remove heat from said fuel;

a secondary heat exchanger connected in thermal communication with said Peltier-effect device, said secondary heat exchanger connecting said Peltier-effect device in thermal communication with a stream of water;

10 a fuel pumping module connected in fluid communication between said fuel storage reservoir and said engine;

a low pressure fuel conduit connected in fluid communication between said fuel storage reservoir and said fuel pumping module, said Peltier-effect device being connected in thermal communication with said low pressure fuel conduit;

15 a high pressure fuel conduit connected in fluid communication between said fuel pumping module and said engine, said Peltier-effect device being connected in thermal communication with said high pressure fuel conduit.

33. The fuel system of claim 32, wherein:

said marine propulsion device is attachable to a marine vessel.

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34. The fuel system of claim 33, further comprising:

a water pump connected in fluid communication with said Peltier-effect device to cause said stream of water to flow from a body of water, on which said marine vessel is operable, through said secondary heat exchanger.

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35. The fuel system of claim 34, further comprising:

a fuel rail connected in fluid communication with said fuel storage reservoir to distribute said fuel to a plurality of cylinders of said engine.

36. The fuel system of claim 35, further comprising:

5 a heat exchange conduit connected in thermal communication with said Peltier-effect device to direct a flow of said fuel through said heat exchange conduit in thermal communication with a cold side of said Peltier-effect device.

37. The fuel system of claim 36, wherein:

10 said fuel pumping module comprises a lift pump and a high pressure pump.

38. The fuel system of claim 37, wherein:

said lift pump is connected in fluid communication between said fuel pumping module and said fuel storage reservoir; and

15 said high pressure pump is connected in fluid communication between said fuel pumping module and said engine.